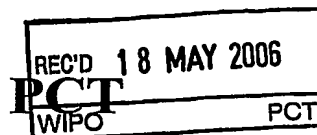


# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:  
CHRISTOPHER C. SAPPENFIELD  
QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.  
P.O. BOX 458  
ALAMEDA, CA 94501



## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) <span style="float: right; font-weight: bold;">15 MAY 2006</span>		
Applicant's or agent's file reference 61-000810PC		
<b>FOR FURTHER ACTION</b> See paragraph 2 below		
International application No. PCT/US04/23566	International filing date (day/month/year) 21 July 2004 (21.07.2004)	Priority date (day/month/year) 22 July 2003 (22.07.2003)
International Patent Classification (IPC) or both national classification and IPC IPC: G01N 33/48( 2006.01) USPC: 702/19,20		
Applicant THE REGENTS OF THE UNIVERSITY OF COLORADO		

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 03 April 2006 (03.04.2006)	Authorized officer Shubo (Joe) Zhou Telephone No. (571)-272-1600
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US04/23566

**Box No. I Basis of this opinion**

1. With regard to the language, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper  
☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in electronic form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US04/23566

**Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims <u>2-18</u>	YES
	Claims <u>1</u>	NO
Inventive step (IS)	Claims <u>1-18</u>	YES
	Claims <u>NONE</u>	NO
Industrial applicability (IA)	Claims <u>1-18</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claim 1 lacks novelty under PCT Article 33(2) as being anticipated by Sirava et al. Sirava et al. disclose a method and system for modeling and analyzing biochemical pathways and networks. The method comprising a population of compounds such as simple ions, amino acids, RNA, DNA and proteins. See pages s220-221 and Figs. 1-2. The method also comprises a search program to search compounds in preexisting databases, define and identify a candidate pathway for compounds, such as what is shown in Fig. 3 on page s221. Also see page s223, right column and page s224, left column.

Claims 2-18 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a method comprising providing a population of compounds, defining at least one state space that comprises the population, identifying candidate pathways or networks for the compounds using a greedy search, admissible heuristic, etc.

Claims 1-18 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry, such as identifying drug targets that are in a particular pathways or networks in human.